

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057

Telephone:	+86 (0) 755 2601 2053
Fax:	+86 (0) 755 2671 0594
Email:	ee.shenzhen@sgs.com

Report No.: SZEM170100023601 Page: 1 of 40

TEST REPORT

Application No.:	SZEM1701000236CR(GZEM1701000016ME)
Applicant:	Shenzhen Urion Technology Co.,Ltd.
Address of Applicant:	4F, Bldg. 4, Hi-tech Industrial Zone, Heping Community, Fuyong St., Bao'an Dist., Shenzhen, China
Manufacturer:	Shenzhen Urion Technology Co.,Ltd.
Address of Manufacturer:	4F, Bldg. 4, Hi-tech Industrial Zone, Heping Community, Fuyong St., Bao'an Dist., Shenzhen, China
Factory:	Shenzhen Urion Technology Co.,Ltd.
Address of Factory:	4F, Bldg. 4, Hi-tech Industrial Zone, Heping Community, Fuyong St., Bao'an Dist., Shenzhen, China
Equipment Under Test (EUT	·):
EUT Name:	Digital blood pressure monitor
Model No.:	U60GH
FCC ID:	2AK5K60GH17001
Standards:	47 CFR Part 15, Subpart C 15.247
Date of Receipt:	2017-01-10
Date of Test:	2017-01-17 to 2017-01-22
Date of Issue:	2017-01-23
Test Result :	Pass

* In the configuration tested, the EUT complied with the standards specified above.



Jack Zhang EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.



Report No.: SZEM170100023601 Page: 2 of 40

	Revision Record				
Version	Chapter	Date	Modifier	Remark	
01		2017-01-23		Original	

Authorized for issue by:		
Tested By	Bill Chen /Project Engineer	2017-01-22
Checked By	Eric Fu	2017-01-23
	Eric Fu /Reviewer	Date



Report No.: SZEM170100023601 Page: 3 of 40

2 Test Summary

Radio Spectrum Technical RequirementItemStandardMethodRequirementResultAntenna
Requirement47 CFR Part 15,
Subpart C 15.247ANSI C63.10 (2013)47 CFR Part 15,
Subpart C 15.203
& 15.247(c)Pass

Radio Spectrum Matter Part					
Item	Standard	Method	Requirement	Result	
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1.2	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass	
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass	
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass	
Conducted Spurious Emissions			47 CFR Part 15, Subpart C 15.247(d)	Pass	
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass	
Radiated Emissions which fall in the restricted bands	which fall in the Subpart C 15 247 Section 6 10 5		47 CFR Part 15, Subpart C 15.205 & 15.209	Pass	
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass	



Report No.: SZEM170100023601 Page: 4 of 40

3 Contents

		Page
1	1 COVER PAGE	1
•		
2	2 TEST SUMMARY	
3	3 CONTENTS	4
4	4 GENERAL INFORMATION	6
	4.1 DETAILS OF E.U.T.	
	4.2 DESCRIPTION OF SUPPORT UNITS	
	4.3 Measurement Uncertainty	
	4.4 STANDARDS APPLICABLE FOR TESTING	
	4.5 TEST LOCATION	9
	4.6 Test Facility	9
	4.7 DEVIATION FROM STANDARDS	
	4.8 ABNORMALITIES FROM STANDARD CONDITIONS	9
5	5 EQUIPMENT LIST	
_		
6	6 RADIO SPECTRUM TECHNICAL REQUIREMENT	
	6.1 ANTENNA REQUIREMENT	
	6.1.1 Test Requirement:	
	6.1.2 Conclusion	
7	7 RADIO SPECTRUM MATTER TEST RESULTS	13
•	7.1 Conducted Peak Output Power	
	7.1.1 E.U.T. Operation	
	7.1.2 Test Setup Diagram	
	7.1.2 Test Setup Diagram	
	7.2 MINIMUM 6DB BANDWIDTH	
	7.2.1 E.U.T. Operation	
	7.2.2 Test Setup Diagram	
	7.2.3 Measurement Data	
	7.3 POWER SPECTRUM DENSITY	
	7.3.1 E.U.T. Operation	
	7.3.2 Test Setup Diagram	
	7.3.3 Measurement Data	
	7.4 Conducted Spurious Emissions	
	7.4.1 E.U.T. Operation	
	7.4.2 Test Setup Diagram	
	7.4.3 Measurement Data	
	7.5 RADIATED SPURIOUS EMISSIONS	
	7.5.1 E.U.T. Operation	
	7.5.2 Test Setup Diagram	
	7.5.3 Measurement Data	
	7.6 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS	
	7.6.1 E.U.T. Operation	
	7.6.2 Test Setup Diagram 7.6.3 Measurement Data	
	7.6.3 Measurement Data 7.7 Conducted Band Edges Measurement	
	7.7 CONDUCTED BAND EDGES MEASUREMENT	
	7.7.2 Test Setup Diagram	
	I I I I I I I I I I I I I I I I I I I	



Report No.: SZEM170100023601 Page: 5 of 40

			•	
	7.	.7.3	Measurement Data	25
8	Р	ното	OGRAPHS	26
			iated Spurious Emissions Test Setup	
9		-	VDIX	
	9.1	Appe	endix 15.247	28-40



Report No.: SZEM170100023601 Page: 6 of 40

4 General Information

4.1 Details of E.U.T.

Power supply:	3.0V DC (2 x 1.5V "AAA" Size Batteries)
Test voltage	3V
Product Name:	Digital blood pressure monitor
Model No.:	U60GH
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.0 Signal mode
Modulation Type:	GFSK
Number of Channel:	40
Antenna Type:	Integral
Antenna Gain:	3dBi

4.2 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
Laptop	Lenovo	T430u
Test board	Supply to SGS	FT232



Report No.: SZEM170100023601 Page: 7 of 40

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25 x 10-8
2	Timeout	2s
3	Duty cycle	0.37%
4	Occupied Bandwidth	3%
5	RF conducted power	0.75dB
6	RF power density	2.84dB
7	Conducted Spurious emissions	0.75dB
0	DE Dedicted resurr	4.5dB (below 1GHz)
8	RF Radiated power	4.8dB (above 1GHz)
0	Dedicted On views emission test	4.5dB (30MHz-1GHz)
9	Radiated Spurious emission test	4.8dB (1GHz-18GHz)
10	Temperature test	1 ℃
11	Humidity test	3%
12	Supply voltages	1.5%
13	Time	3%



Report No.: SZEM170100023601 Page: 8 of 40

4.4 Standards Applicable for Testing

Item	Status
Conducted Disturbance at AC Power Line(150kHz-30MHz)	×
20dB Bandwidth	×
Conducted Peak Output Power	\checkmark
Carrier Frequencies Separation	×
Hopping Channel Number	×
Dwell Time	×
Minimum 6dB Bandwidth	\checkmark
Power Spectrum Density	\checkmark
Conducted Spurious Emissions	\checkmark
Radiated Spurious Emissions	\checkmark
Radiated Emissions which fall in the restricted bands	\checkmark
Conducted Band Edges Measurement	\checkmark
Antenna Requirement	\checkmark
Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence	×

Table 1 : Tests Carried Out Under 47 CFR Part 15. Subpart C 15.247

 $_{\sqrt{}}^{\times}$ Indicates that the test is not applicable

Indicates that the test is applicable



Report No.: SZEM170100023601 Page: 9 of 40

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594 No tests were sub-contracted.

4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None



Report No.: SZEM170100023601 Page: 10 of 40

5 Equipment List

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm- dd)	Cal. Due date (yyyy-mm- dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2016-05-13	2017-05-13
2	EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2016-10-09	2017-10-09
3	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01
4	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17
5	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2016-04-25	2017-04-25
7	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A
8	DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
9	Loop Antenna	Beijing Daze	ZN30401	SEM003-09	2015-05-13	2018-05-13

	RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm- dd)	Cal. Due date (yyyy-mm- dd)	
1	3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2016-05-13	2017-05-13	
2	EXA Spectrum Analyzer	Agilent Technologies Inc	N9010A	SEM004-09	2016-07-19	2017-07-19	
3	BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2014-11-15	2017-11-15	
4	Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2016-10-09	2017-10-09	
5	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14	
6	Horn Antenna (18-26GHz)	ETS-Lindgren	3160	SEM003-12	2014-11-24	2017-11-24	
7	Horn Antenna(26GHz- 40GHz)	A.H.Systems, inc.	SAS-573	SEM003-13	2015-02-12	2018-02-12	
8	Low Noise Amplifier	Black Diamond Series	BDLNA-0118- 352810	SEM005-05	2016-10-09	2017-10-09	
9	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A	



Report No.: SZEM170100023601 Page: 11 of 40

	RF connected test							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm- dd)	Cal. Due date (yyyy-mm- dd)		
1	DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2016-10-09	2017-10-09		
2	Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2016-10-09	2017-10-09		
3	Signal Generator	Rohde & Schwarz	SML03	SEM006-02	2016-04-25	2017-04-25		
4	Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2016-10-09	2017-10-09		

General used equipment						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2016-10-12	2017-10-12	
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2016-10-12	2017-10-12	
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2016-10-12	2017-10-12	
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2016-05-18	2017-05-18	



Report No.: SZEM170100023601 Page: 12 of 40

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.247

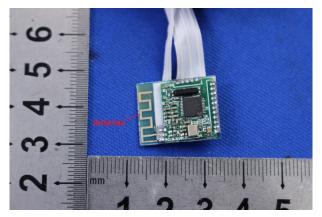
6.1.2 Conclusion

Standard Requirment:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 3dBi.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-



Report No.: SZEM170100023601 Page: 13 of 40

7 Radio Spectrum Matter Test Results

7.1 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 11.9.1.2
Limit:	

Frequency range(MHz)	Output power of the intentional radiator(watt)		
	1 for ≥50 hopping channels		
902-928	0.25 for <50 hopping channels		
	1 for digital modulation		
	1 for ≥75 non-overlapping hopping channels		
2400-2483.5	0.125 for all other frequency hopping systems		
	1 for digital modulation		
5725-5850 1 for frequency hopping systems and digital m			



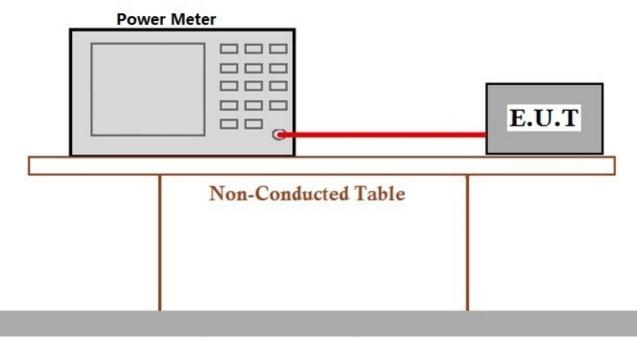
Report No.: SZEM170100023601 Page: 14 of 40

7.1.1 E.U.T. Operation

Operating Environment:

Temperature:25.0 °CHumidity:50 % RHAtmospheric Pressure:1020 mbarTest mode:a:TX mode:Keep the EUT in transmitting mode

7.1.2 Test Setup Diagram



Ground Reference Plane

7.1.3 Measurement Data



Report No.: SZEM170100023601 Page: 15 of 40

7.2 Minimum 6dB Bandwidth

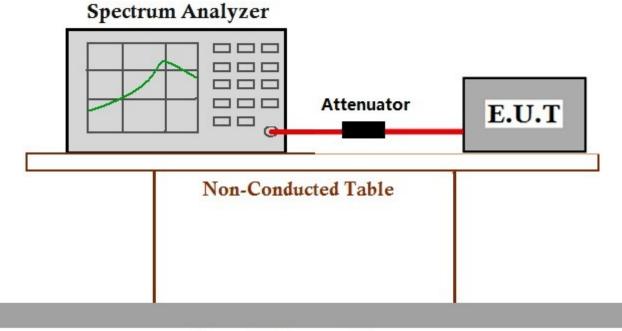
Test Requirement:	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 11.8.1
Limit:	≥500 kHz

7.2.1 E.U.T. Operation

Operating Environment:

Temperature:25.0 °CHumidity:50 % RHAtmospheric Pressure:1020 mbarTest mode:a:TX mode:Keep the EUT in transmitting mode

7.2.2 Test Setup Diagram



Ground Reference Plane

7.2.3 Measurement Data



Report No.: SZEM170100023601 Page: 16 of 40

7.3 Power Spectrum Density

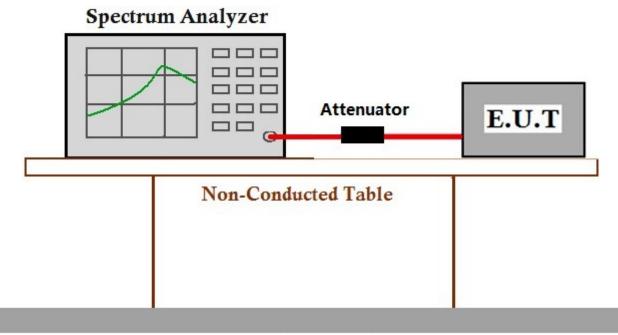
Test Requirement:	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 11.10.2
Limit:	${\leq}8\text{dBm}$ in any 3 kHz band during any time interval of continuous transmission

7.3.1 E.U.T. Operation

Operating Environment:

Temperature:	25.0 °C	Humidity:	50 % RH	Atmospheric Pressure:	1020	mbar
Test mode:	a:TX mode:Ke	ep the EUT i	in transmitting mo	de		

7.3.2 Test Setup Diagram



Ground Reference Plane

7.3.3 Measurement Data



Report No.: SZEM170100023601 Page: 17 of 40

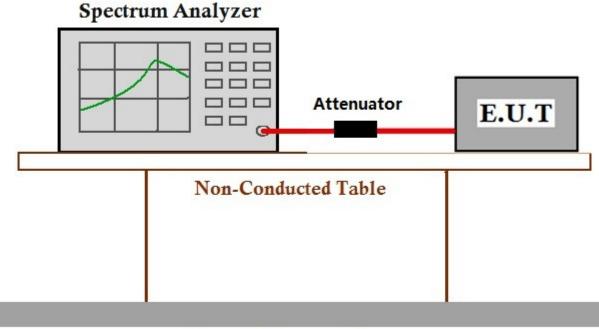
7.4 Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 11.11
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

7.4.1 E.U.T. Operation

Operating Environment:						
Temperature:	25.0 °C	Humidity:	50 % RH	Atmospheric Pressure:	1020	mbar
Test mode:	a:TX mode:k	leep the EUT i	in transmitting mo	ode		

7.4.2 Test Setup Diagram



Ground Reference Plane

7.4.3 Measurement Data

The detailed test data see: Appendix 15.247



Report No.: SZEM170100023601 Page: 18 of 40

7.5 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 6.4,6.5,6.6
Measurement Distance:	3m
Limit:	

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.



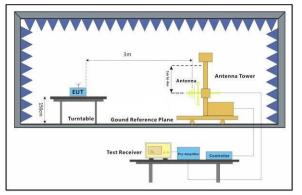
Report No.: SZEM170100023601 Page: 19 of 40

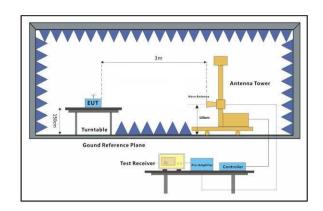
7.5.1 E.U.T. Operation

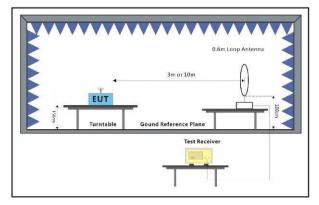
Operating Environment:

Temperature:25.0 °CHumidity:50 % RHAtmospheric Pressure:1020 mbarTest mode:a:TX mode:Keep the EUT in transmitting mode

7.5.2 Test Setup Diagram









Report No.: SZEM170100023601 Page: 20 of 40

7.5.3 Measurement Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel (2402MHz),the middle channel (2441MHz),the Highest channel (2480MHz)

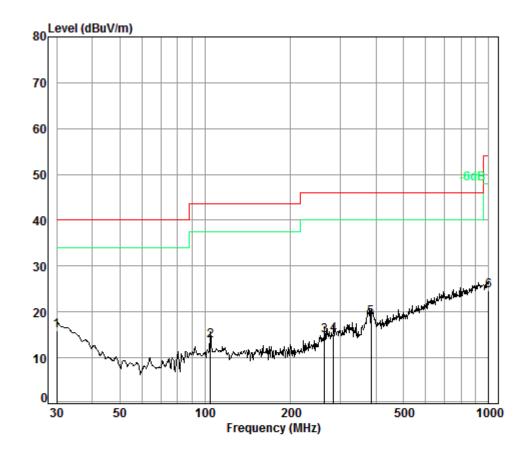
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.



Report No.: SZEM170100023601 Page: 21 of 40

Mode:a;Polarization:Vertical



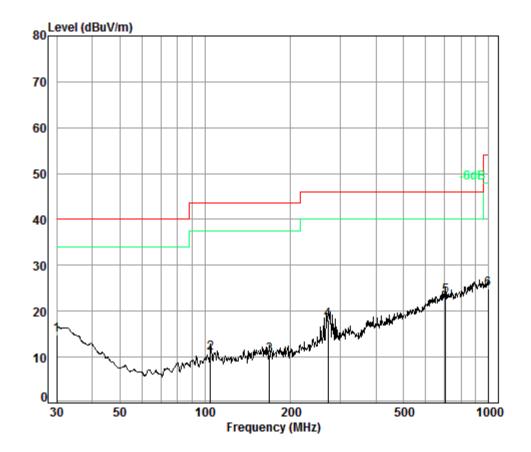
Condition: 3m VERTICAL Job No. : 0236CR Test mode: TX

	Freq			Preamp Factor			Limit Line	Over Limit
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp 2 3 4 5	30.00 104.54 263.82 283.98 385.28	0.60 1.21 1.74 1.83 2.16	8.87 12.58 13.20		30.74 26.96 26.53	13.65 14.78 15.12	43.50 46.00 46.00	-31.22
6	1000.00	3.70	24.30	26.30	22.84	24.54	54.00	-29.46



Report No.: SZEM170100023601 Page: 22 of 40

Mode:a;Polarization:Horizontal



Condition: 3m HORIZONTAL Job No. : 0236CR Test mode: TX

		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	30.00	0.60	18.70	27.36	22.90	14.84	40.00	-25.16
2	104.54	1.21	8.87	27.17	27.94	10.85	43.50	-32.65
3	169.01	1.35	9.51	26.82	26.52	10.56	43.50	-32.94
4	271.32	1.77	12.73	26.47	30.03	18.06	46.00	-27.94
5 pp	704.23	2.92	21.60	27.41	26.11	23.22	46.00	-22.78
6	993.01	3.69	24.02	26.33	23.49	24.87	54.00	-29.13



Report No.: SZEM170100023601 Page: 23 of 40

7.6 Radiated Emissions which fall in the restricted bands

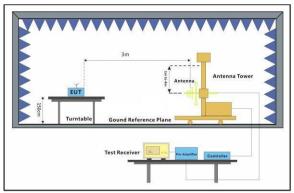
Test Requirement:	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 6.10.5

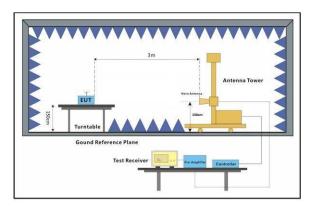
7.6.1 E.U.T. Operation

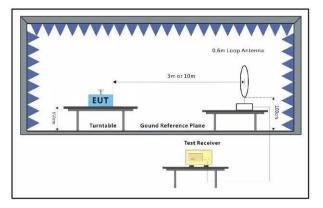
Operating Environment:

Temperature:25.0 °CHumidity:50 % RHAtmospheric Pressure:1020 mbarTest mode:a:TX mode:Keep the EUT in transmitting mode

7.6.2 Test Setup Diagram









Report No.: SZEM170100023601 Page: 24 of 40

7.6.3 Measurement Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel (2402MHz),the middle channel (2441MHz),the Highest channel (2480MHz)

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.



Report No.: SZEM170100023601 Page: 25 of 40

7.7 Conducted Band Edges Measurement

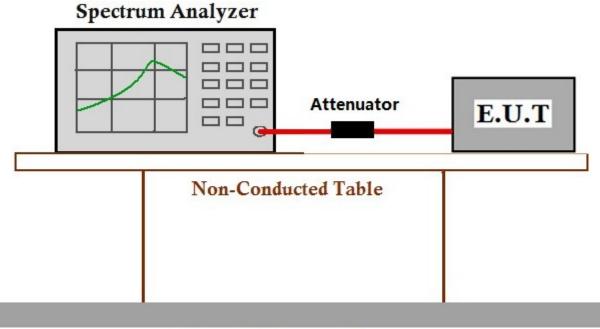
Test Requirement:	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 11.13.3.2

7.7.1 E.U.T. Operation

Operating Environment:

Temperature:25.0 °CHumidity:50 % RHAtmospheric Pressure:1020 mbarTest mode:a:TX mode:Keep the EUT in transmitting mode

7.7.2 Test Setup Diagram



Ground Reference Plane

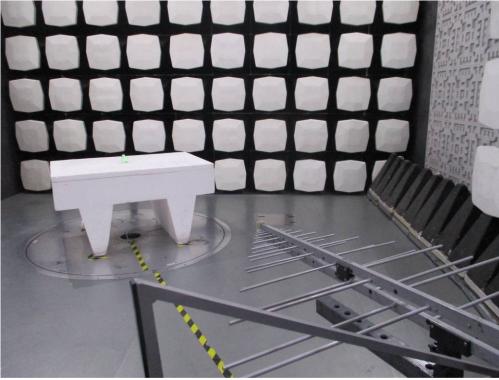
7.7.3 Measurement Data



Report No.: SZEM170100023601 Page: 26 of 40

8 Photographs

<section-header>



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com/en/Terms-and-Conditions-aspx and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exconerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



Report No.: SZEM170100023601 Page: 27 of 40

8.2 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1701000236CR.



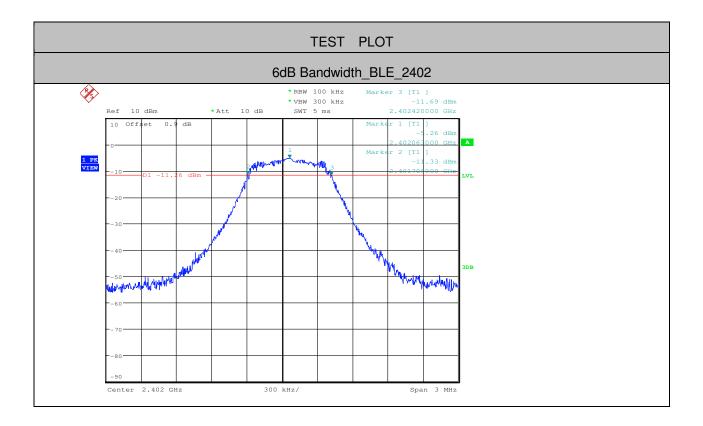
Report No.: SZEM170100023601 Page: 28 of 40

9 Appendix

9.1 Appendix 15.247

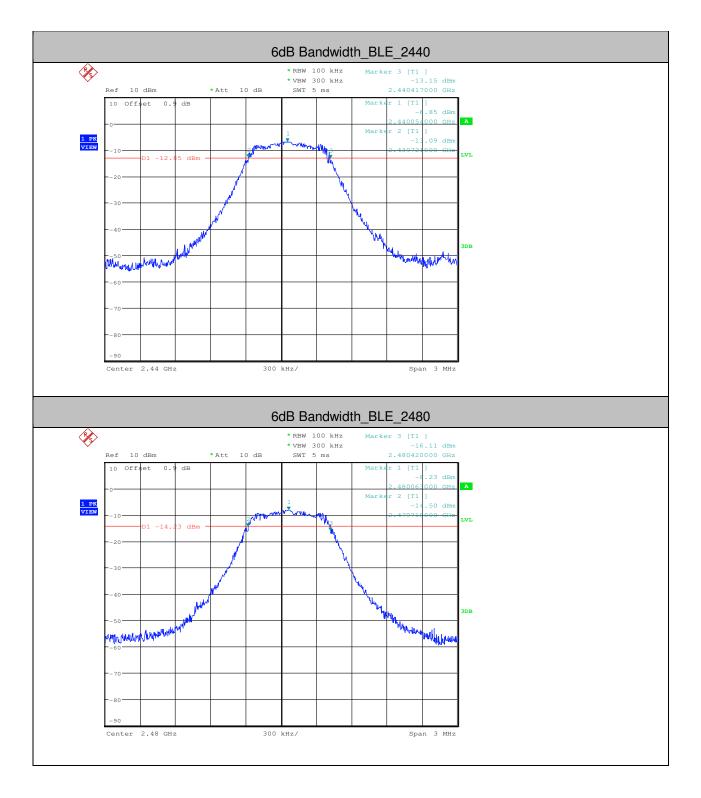
1.6dB Bandwidth

Test Mode	Test Channel	EBW[MHz]	Limit	Verdict
BLE	2402	0.714	>=0.5	PASS
BLE	2440	0.696	>=0.5	PASS
BLE	2480	0.702	>=0.5	PASS





Report No.: SZEM170100023601 Page: 29 of 40

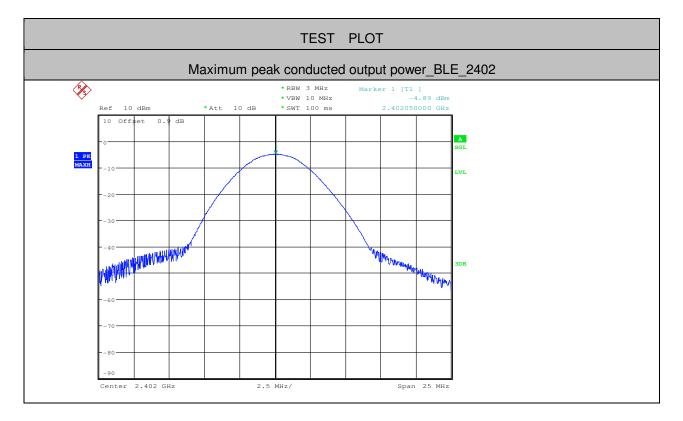




Report No.: SZEM170100023601 Page: 30 of 40

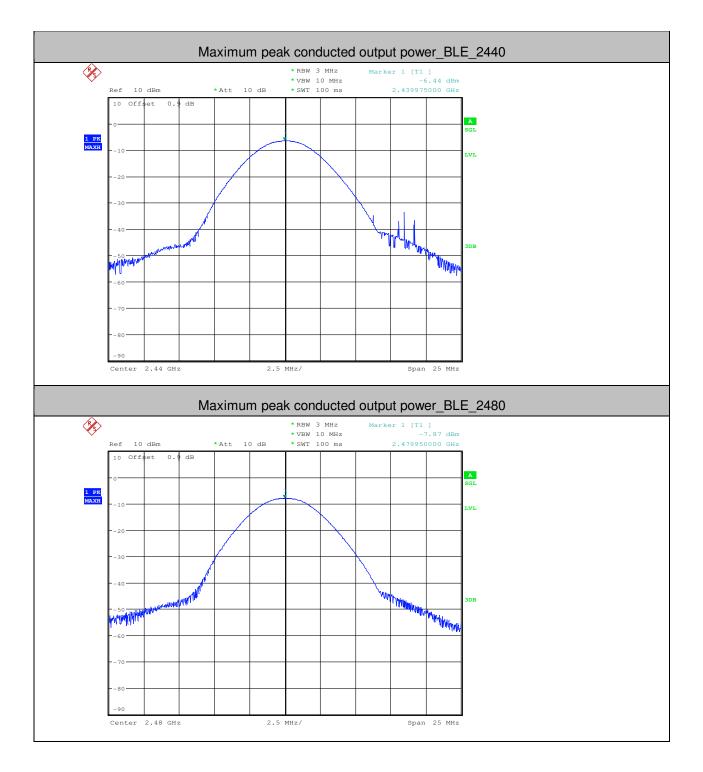
3.Maximum peak conducted output power

Test Mode	Test Channel	Power[dBm]	Limit[dBm]	Verdict
BLE	2402	-4.89	<30	PASS
BLE	2440	-6.44	<30	PASS
BLE	2480	-7.87	<30	PASS





Report No.: SZEM170100023601 Page: 31 of 40

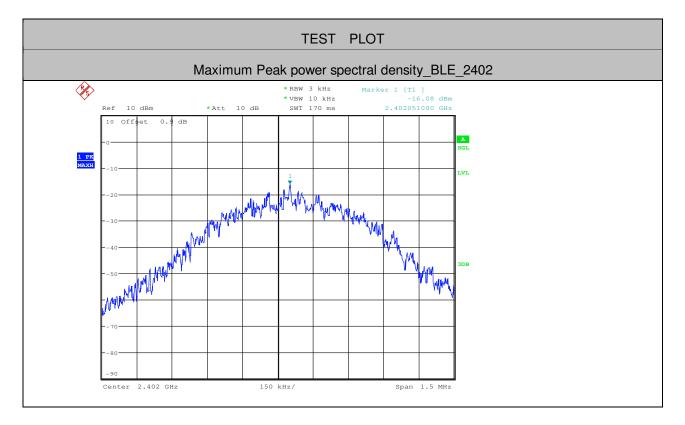




Report No.: SZEM170100023601 Page: 32 of 40

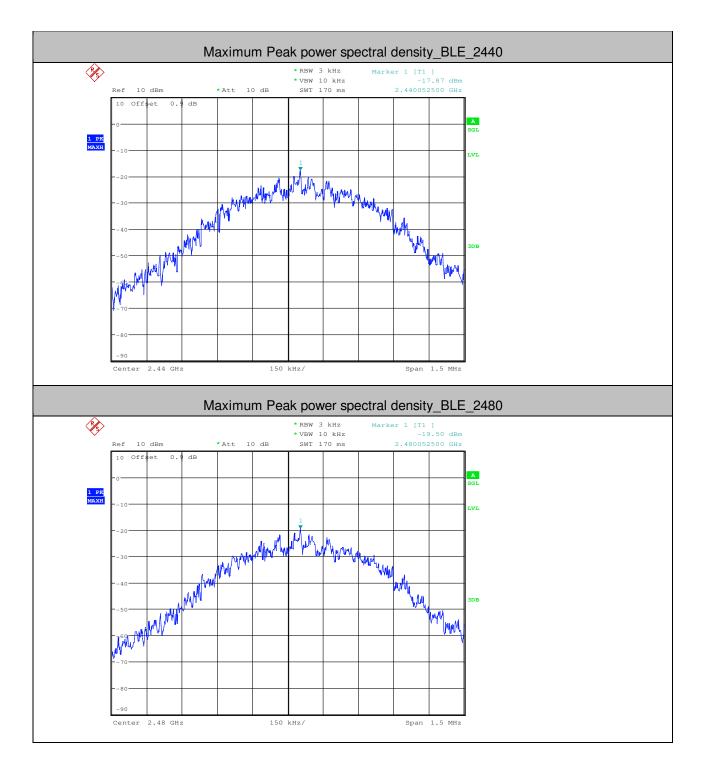
4.Maximum Peak power spectral density

Test Mode	Test Channel	PSD[dBm/MHz]	Limit[dBm/MHz]	Verdict
BLE	2402	-16.08	<8.00	PASS
BLE	2440	-17.87	<8.00	PASS
BLE	2480	-19.5	<8.00	PASS





Report No.: SZEM170100023601 Page: 33 of 40

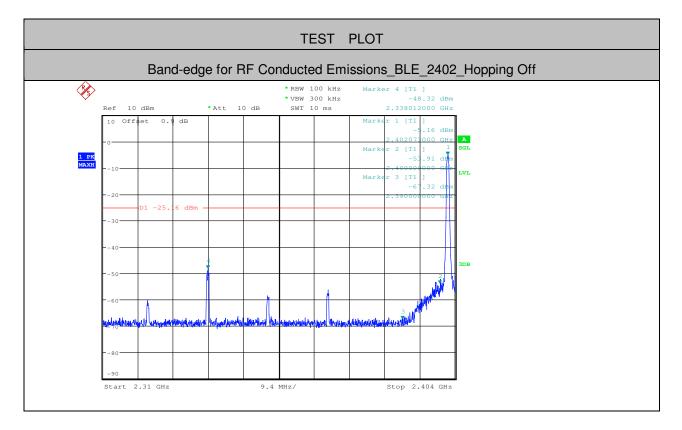




Report No.: SZEM170100023601 Page: 34 of 40

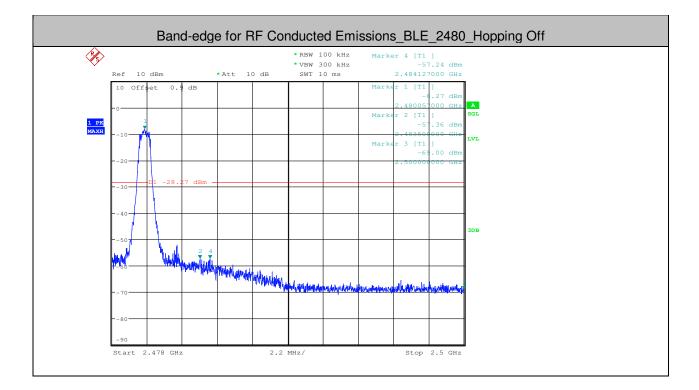
5.Band-edge for RF Conducted Emissions

Test Mode	Test Channel	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit[dBm -	Verdict
BLE	2402	-5.160	-48.319	<-25.16	PASS
BLE	2480	-8.270	-57.241	<-28.27	PASS





Report No.: SZEM170100023601 Page: 35 of 40

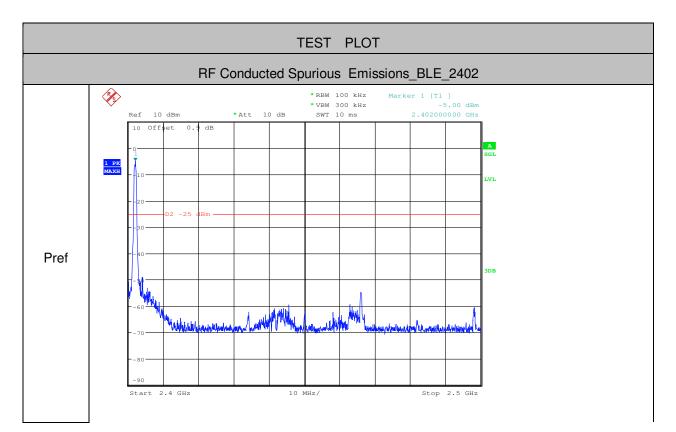




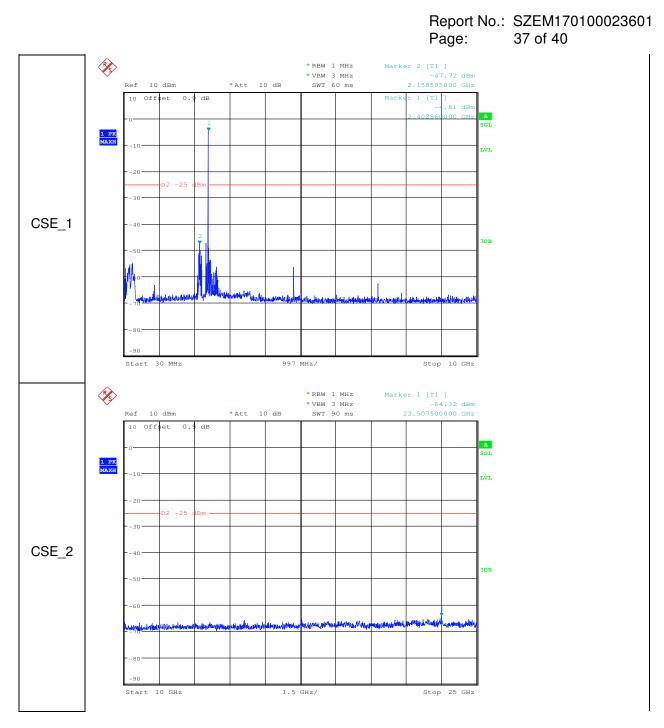
Report No.: SZEM170100023601 Page: 36 of 40

6.RF Conducted Spurious Emissions

Test Mode	Test Channel	StartFre [MHz]	StopFre [MHz]	RBW [kHz]	VBW [kHz]	Pref[dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BLE	2402	30	10000	1000	3000	-5	-47.720	<-25	PASS
BLE	2402	10000	25000	1000	3000	-5	-64.320	<-25	PASS
BLE	2440	30	10000	1000	3000	-6.59	-46.610	<-26.59	PASS
BLE	2440	10000	25000	1000	3000	-6.59	-65.170	<-26.59	PASS
BLE	2480	30	10000	1000	3000	-8.05	-46.260	<-28.05	PASS
BLE	2480	10000	25000	1000	3000	-8.05	-65.130	<-28.05	PASS









Report No.: SZEM170100023601 Page: 38 of 40

